

### REMARKS

This paper is responsive to the Non-Compliant Amendment mailed on 19 February 2009. Examiner stated that status identifier to claims 28 was not provided.

In view of the corrected amendment, Applicant requests further examination and reconsideration of the present patent application.

### 35 USC §103

The Examiner rejected claims 1,4-11,14-21,34,35,38,39 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 4,749,005 (hereinafter "Bergquist") in view of U.S. Patent No. 5,795,998 (hereinafter "Smith"). The Applicants respectfully traverse these rejections.

The Examiner also rejected claims 2,3,12,13,22,23,28-33,36,37 under 35 USC §103(a) as being unpatentable over U.S. Patent No. 4,749,005 (hereinafter "Bergquist") in view of U.S. Patent No. 5,795,998 (hereinafter "Smith"), further in view of U.S. Patent No. 5,924,857 (hereinafter "Frasnetti"). The Applicants respectfully traverse these rejections.

### *Legal Precedent and Guidelines*

The burden of establishing a *prima facie* case of obviousness falls on the Examiner. Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.

When prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. Additionally, it is improper to combine references where the references teach away from their combination. Moreover, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. If the proposed modification or combination would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

**Claims 1, 11, 34**

Independent claim 1 recites, *inter alia*, “a pressure regulator adapted to regulate a gas flow from a gas feed line; a gas fuel boost pump disposed downstream of the pressure regulator and adapted to increase pressure of the gas flow received from the gas feed line; and a gas burner disposed to receive the gas flow from the gas fuel boost pump. (Emphasis added)

Independent claim 11 recites, *inter alia*, “a pressure regulator adapted to regulate gas flow from a gas feed line; a gas fuel boost pump placed downstream of the pressure regulator and adapted to increase a pressure of the gas flow received from the gas feed line; a gas burner disposed to receive the gas flow from the gas fuel boost pump; and a transducer disposed upstream of the gas burner and adapted to measure a parameter of gas flow from the gas fuel boost pump pressure at a predetermined location.” (Emphasis added)

Independent claim 34 recites, *inter alia*, “a pressure regulator adapted to regulate a gas flow from a gas feed line; a gas fuel boost pump disposed downstream of the pressure regulator and adapted to increase primary air entrainment of the gas flow received from the gas feed line; and a gas burner disposed for receiving the gas flow from the gas fuel boost pump.” (Emphasis added)

Applicants submit that independent claims 1, 11, 34 recite, in generally similar language, the gas range system including *gas fuel boost pump disposed downstream of the pressure regulator* and configured to *increase pressure* of a gas flow received from the gas feed line.

The Examiner argued that Bergquist shows a method of enhancing burner performance and a gas range system that includes a pressure regulator in the form of a actuating device (12), which functions to regulate gas flow through a gas feed line (10). The second flow regulator (C) performs the functions at a regulated pressure. The Examiner acknowledges the fact that Bergquist does not disclose the use of a fuel boost pump.

Furthermore, the Examiner argued that Smith discloses a microcontroller (22) connected to a transducer (20 or 38), and a variable speed or variable displacement pump (25) and that the controller coupled to the variable speed pump serves to supply the required pressure with a high degree of accuracy.

Applicants submit that, first, the primary reference Bergquist fail to disclose a pressure regulator as recited by the independent claim 1. In sharp contrast, the valve 12, in Bergquist is a shut off valve used to terminate flow of gas as evident in col. 8, lines 13-16:

"A main or gas line supply shut off valve 12 is mounted to the gas supply line adjacent its emergency from the wall for terminating the flow of gas when no appliance is connected thereto." (Emphasis Added)

It may be noted from the cited passages that the valve 12 *does not* perform the intended function of pressure regulator as recited in the present claims.

Second, the primary reference Bergquist does not teach or suggest a gas fuel boost pump as admitted by the Examiner. Further, the variable speed or variable displacement pump in secondary reference Smith does not obviate this deficiency in Bergquist and this clearly indicates neither of the references discloses a gas fuel boost pump.

Applicants submit that the Examiner apparently intended to refer to Bergquist for teaching the fuel regulator and Smith for teaching a fuel regulating pump and pump controller. However, neither of these references discloses a gas fuel boost pump disposed downstream of the pressure regulator and configured to increase pressure of the gas flow from the gas feed line.

Applicants submit that even if the valve of Bergquist were to be replaced with a variable speed or variable displacement pump of Smith the system would not have a gas fuel boost pump. Further, such system will not be able to achieve *a pressure boost* of the gas flow from the gas feed line. In sharp contrast, Smith teaches that a constant pressure is maintained between inlet and outlet by varying size of the metering profile defined the meter profile 10 and the opening 12 in col 3. lines 55-57:

"Thus, a constant pressure is maintained between the inlet 5 and the outlet 11 by varying the size of the metering profile defined between the meter profile 10 and the opening 12." (Emphasis added)

However, the present invention provides enhancing performance of a gas burner by increasing air entrainment of the gas flow received from the gas feed line. In particular, the primary air enhancement is increased via increasing the pressure of the gas flow by a *gas fuel boost pump* that is disposed downstream of the pressure regulator. As discussed above, Bergquist and Smith, even in combination does not teach such an arrangement.

Following the alternative teachings of Smith (i.e., fuel regulating pump and pump controller), the modification proposed by the Examiner would effectively replace the valve of Bergquist with a fuel regulating pump and pump controller. Applicants point out that such

replacement would result in a fuel regulating pump with *no upstream regulator*, while both are required by the current claims. Applicants further submit that such fuel regulating pumps are well known and used for pressure control and to maintain a flow rate demand. See, Smith Col. 5, lines 22-24. Therefore, even in combination, Bergquist and Smith do not teach an increase in pressure of the gas flow downstream of the pressure regulator.

Therefore, Applicants submit that independent claims 1, 11, 34 are allowable over the proposed combination, and respectfully request the Examiner to reconsider the rejection of the claims. Claims 2-10, 12-20, 35-39 depend from independent claims 1, 11, 3, respectively. Applicants respectfully submit that inasmuch as independent claims 1, 11, 34 are allowable, these claims are allowable at least by virtue of their dependency from an allowable base claim.

#### **Claims 22 and 29**

Independent claim 22 recites, "A method of enhancing performance of a gas burner, having a gas as fuel comprising: actively increasing pressure of a gas flow through a gas feed line via a gas fuel boost pump disposed downstream of a pressure regulator coupled to the gas feed line; and regulating the gas flow of the gas fuel boost pump based upon a user-defined input to regulate a burner heat output to a desired burner output." (Emphasis added)

Independent claim 29 recites, *inter alia*, "increasing pressure of a current gas flow through a gas feed line via a gas fuel boost pump disposed downstream of a pressure regulator coupled to the gas feed line; measuring a parameter of gas flow from the gas fuel boost pump at a predetermined location via a transducer; and regulating the gas flow through the gas fuel boost pump based upon a user-defined input and a signal received from the transducer." (Emphasis added)

Applicants submit that independent claims 22 and 29 recite, in generally similar language, a method of *increasing gas flow through a gas feed line via a gas fuel boost pump disposed downstream of the pressure regulator*.

Examiner argued that Frassetto discloses a controller to maintain a required gas flow pressure to the burner. Further, Examiner apparently intended to refer to Bergquist for teaching the fuel regulator and Smith for teaching a fuel regulating pump and pump controller and further

Application No. 10/814,722

Reply to Notice of Non-Compliant Amendment mailed on 19 February 2009

Frasnetti for teaching a controller for maintaining gas flow pressure. However, these references *do not* disclose a gas fuel boost pump disposed downstream of the pressure regulator and configured to increase pressure of the gas flow from the gas feed line as recited by the present claims.

Further in support of rejection of claims 22-27, Examiner argued that it would have been obvious to modify Bergquist in view of Smith apparatus with controller features taught by U.S. Patent 6,287,108 (hereinafter "Rothenberger"). Applicants respectfully submit that, in decision on Appeal by the board mailed on 27 October 2008, Appeal 2008-0555, page 4:

"Rothenberger does not disclose a gas fuel boost pump disposed downstream for a pressure regulator and adapted to increase pressure of the gas flow received from the gas feed line, as recited in independent claims 1, 11, 34, nor does Rothenberger disclose the step of actively increasing pressure of a gas flow through a gas feed line via a gas fuel boost pump disposed downstream of a pressure regulator coupled to the gas feed line, as recited in independent claims 22 and 29." (Emphasys added)

As evident in the decision on appeal, Applicants respectfully submit Rothenberger fail to disclose features of the present independent claims 22 and 29.

For at least these reasons among others, claims 22, 29 and its dependent claims are allowable. Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103.

Application No. 10/814,722

Reply to Notice of Non-Compliant Amendment mailed on 19 February 2009

### Summary

For the reasons set out above, Applicant respectfully submits that the application is in condition for allowance. Favorable reconsideration and allowance of the application are, therefore, respectfully requested.

If the Examiner believes that anything further is necessary to place the application in better condition for allowance, the Examiner is kindly asked to contact Applicant's undersigned representative at the telephone number below.

Respectfully submitted,

Date: March 16, 2009

/Patrick Patnode/

Patrick K. Patnode

Reg. No. 40,121

General Electric Company

Building K1, Room 3A54A

Niskayuna, New York 12309

Telephone: (518) 387-5286